भारतीय मानक
Indian Standard

IS 17618 (Part 1) : 2021

तसर कच्चा रेशम — ग्रेडिंग और परीक्षण पद्धतियाँ

भाग 1 ग्रेडिंग/वर्गीकरण

Tasar Raw Silk — Grading and Test Methods

Part 1 Grading/Classification

ICS 59.060.10

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Silk and Silk Products Sectional Committee, TXD 28

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Silk and Silk Products Sectional Committee had been approved by the Textile Division Council.

Grading of tasar raw silk is very important from the viewpoint of quality of the tasar silk and the subsequent products made from it. This will also help the reelers/producers to get the right value of their product and remove malpractices in the Tasar silk trade. The formulation of standard for tasar silk grading will benefit the industry in long run. For mulberry raw silk, BIS has already published IS 15090 (Parts 1 to 11) 'Raw silk — Grading and methods of tests'.

This Indian Standard is published in seven parts. The other parts in the series are:

Part 2 Visual and tactual examination.
Part 3 Winding test.
Part 4 Size test.
Part 5 Tenacity and elongation.
Part 6 Cohesion test.
Part 7 Standard images of defects of tasar silk.

The composition of the Committee responsible for the formulation of this standard is given in Annex E.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

TASAR RAW SILK — GRADING AND TEST METHODS

PART 1 GRADING/CLASSIFICATION

1 SCOPE

This standard (Part 1) prescribes method for grading/classification of tasar raw silk.

2 REFERENCES

The standards listed below contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards.

IS No.	*Title*
SP 45 : 1988	Handbook on glossary of textile terms
232 : 2020	Glossary of textile terms — Natural fibres (*third revision*)
17618 (Part 2) : 2021	Tasar raw silk — Grading and methods of tests: Part 2 Visual and tactual examination
17618 (Part 3) : 2021	Tasar raw silk — Grading and methods of tests: Part 3 Winding test
17618 (Part 4) : 2021	Tasar raw silk — Grading and methods of tests: Part 4 Size test
17618 (Part 5) : 2021	Tasar raw silk — Grading and methods of tests: Part 5 Tenacity and elongation test
17618 (Part 6) : 2021	Tasar raw silk — Grading and methods of tests: Part 6 Cohesion test

3 TERMINOLOGY

For the purpose of this standard the following definitions in addition to those given in SP 45 and IS 232 shall apply.

3.1 Book — A compressed package of tasar raw silk weighting about 2 kg and containing suitable number of skeins.

3.2 Cohesion — The degree of agglutination of cocoon filaments forming tasar raw silk thread, determined by subjecting the tasar raw silk threads to friction in a cohesion tester and counting the number of strokes required to spread and open out constituent filaments for a minimum opening of 6 mm.

3.3 Conditioned Mass — 11 percent of oven dry mass of tasar raw silk is added to its oven dry mass to get conditioned mass.

3.4 Hand — The term ‘hand’ shall denote the feel of tasar raw silk in terms of hardness and smoothness.

3.5 Hank — **Tasar** silk reeled and removed from a reeling/re-reeling machine in the form of an open band. It shall be one continuous thread from outer to inner layers.

3.6 Tasar Raw Silk — Tasar raw silk is the thread reeled from several tasar cocoons and is understood to be a continuous thread from beginning to end of skein.

3.7 Chop — The term ‘chop’ is the mark in the form of name and figure which represent the brand image of the tasar raw silk. It is the representative mark of the lot.

4 GRADES

4.1 The grades shall be expressed in the following order for tasar raw silk where A is the highest and F is the lowest merit: A, B, C, D, E and F.

4.2 Lot Size for Grading/Unit Size for Grading — The lot size for the purpose of grading shall be a lot of 10 *books* of 2 kg each or as per agreed. The lot size shall also be as per the agreement between buyer and seller.

4.3 Sorting of Bales — If individual bales appear to be uniform in colour. Even though the bales vary in colour from one another, the consignment shall be sorted on the basis of colour into groups as may be necessary.

NOTES

1 All books as sorted out for the purpose of grading shall constitute a lot.

2 In case a lot is required to be divided into groups, the number of sample skeins to be drawn from each group shall be proportional to the total number of books in each group.

4.4 Preliminary Examination (In case of drawl of samples by inspecting agencies).

4.4.1 The raw silk skeins, books and bales shall be examined to verify, whether they are meeting the requirements specified in Annex A.

4.4.2 The net mass of bales shall be determined by the method prescribed in Annex B.

4.4.3 The proforma for record and report as given in Annex C shall be used for recording the test data and reporting the results of the preliminary examination.

4.5 Examination and Tests

4.5.1 Each sample lot of tasar raw silk shall be examined visually and tactually according to the method prescribed in IS 17618 (Part 2).

4.5.2 Each lot shall be evaluated for characteristics listed in Table 1.

Table 1 Characteristics and Methods of Tests

(*Clause* 4.5.2)

Sl No.	Characteristics	Method of Tests, Ref to Part of this Standard
(1)	(2)	(3)
i)	Winding breaks	17618 (Part 3)
ii)	Size of tasar raw silk	17618 (Part 4)
iii)	CV of size	17618 (Part 4)
iv)	Tenacity	17618 (Part 5)
v)	Elongation	17618 (Part 5)
vi)	Cohesion	17618 (Part 6)

5 METHOD OF CLASSIFICATION

The grade of a lot shall be determined by comparing the test result values with the corresponding values given in classification in the following manner.

5.1 Grading in Accordance with Major Test (CV of Size Test) (Basic Grade)

The basic grade of a lot shall be determined according to the test result of CV of size test of tasar raw silk as given in Table 2.

5.2 Degrading in Accordance with the Auxiliary Tests

If the observed test result values of winding breaks, tenacity and elongation is found to be lower than the corresponding value specified in the class of auxiliary tests, then the basic grade established in accordance **5.1** shall be lowered by as many grades as the highest numerical difference that exists between required test class for basic grade and the class actually found on the lower side.

5.3 The proforma as given in the Annex D shall be used for issue of certificate of grading.

Table 2 Classification for Tasar Raw Silk

(*Clause* 5.1)

Sl No.	Characteristic	Grade	A	B	C	D	E	F
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(= <)	(= <)	(= <)	(= <)	(= <)	(>)
i)	CV of Size	40 d (4.49 tex) and finer	8.0	11.2	15.7	22.0	30.7	30.7
	(Tex or Denier)	41 to 80 d (4.5 to 8.94 tex)	7.0	9.8	13.7	19.2	26.9	26.9
		81 to 120 d (8.95 to 13.39 tex)	6.0	8.4	11.8	16.5	23.0	23.0
		121 d (13.4 tex) and coarser	5.0	7.0	9.8	13.7	19.2	19.2
		Class	**(1)**	**(2)**		**(3)**	**(4)**	**(5)**
			(= <)	(= <)		(= <)	(= <)	(>)
ii)	Winding breaks	80 d (8.94 tex) and finer	4	5		7	10	10
	(breaks/5skeins/30 min.)	80 d (8.94 tex) and coarser	3	4		6	8	8
		Class	**(1)**			**(2)**		**(3)**
			(> =)			(> =)		(<)
iii)	Tenacity (g/denier)		2.5			1.8		1.8
	Elongation (percent)		22			18		18
		Class	**(1)**		**(2)**		**(3)**	**(4)**
			(> =)		(> =)		(> =)	(<)
iv)	Cohesion (no. of strokes)		20		15		10	10

ANNEX A

(*Clause* 4.4.1)

REELING AND PACKAGING OF TASAR RAW SILK

A-1 REELING

Tasar raw silk shall be carefully cross reeled on reels of 150±2 cm circumference into hanks each weighing approximately 25 g. Each hank shall be of one continuous thread made by tying all breaks with good knot and with loose end of the knot not more than 3mm long. The outside end and the inside end of the thread shall be tied round the hank in such a manner as to be traced easily while winding.

A-1.1 Each hank shall be carefully and neatly 'laced' at places equally spaced using fine soft twisted, un-dyed cotton or spun silk yarn.

A-1.2 Each lacing shall pass through at least 5 diamonds in the width of the hank and neatly tied so that each knot is about 1 cm from the edge of the hank and the loose ends of the knots do not exceed 1 cm in length from the knot.

A-1.3 Each hank so prepare are given 2-3 turns from one end to the other, both ends joined and wrapped with the lacing thread.

A-2 PACKAGING

A-2.1 Suitable number of skeins prepared as in **A-1.3** shall be made into neat books, each weighing approximately 2 kg of equal dimensions on a skein book-making machine. Each such book shall be neatly tied with separate cotton bands at three or five different places and wrapped with light packing paper.

A-2.2 The net mass of tasar raw silk in a lot shall be 20 kg.

ANNEX B

(*Clause* 4.4.2)

METHOD FOR DETERMINATION OF NET MASS

B-1 PROCEDURE

B-1.1 Take out all the outer coverings (including label, cloth used and threads used) used for packing so that all the *books* are separated out. Take the total weight (M_1) of all coverings removed. Count the number of books (n) present. Find the tear weight (T_1) from the following formula.

$$\text{Tear weight } T_1 = \frac{M_1}{n}$$

B-1.2 Take out 2 *books* randomly from each lot. Remove the outer coverings and threads used. Take the total weight (M_2) of all coverings removed. Find the tear weight (T_2) from the following formula.

$$\text{Tear weight } T_2 = \frac{M_2}{2}$$

B-1.3 Calculate the total tear weight (T) by the following formula.

$$\text{Total Tear weight } T = (T_1 + T_2) \times n$$

B-1.4 Calculate the net mass by the following formula.

$$\text{Net mass (M)} = G - T$$

Where,

G = Gross weight; and

T = Total tear weight.

ANNEX C

(*Clause* 4.4.3)

PERFORMA FOR RECORD AND REPORT OF PRELIMINARY EXAMINATION FOR TASAR RAW SILK

[Conducted in accordance with IS 17618 (Part 1),
Tasar Raw Silk — Grading and test methods: Part 1 — Grading/Classification]

Name of Testing House : ____

Mark of the lot : ______________________

No. of bales : ______________________

Serial no. of bales in the lot :_____________

Preliminary examination of external characters:

Mass of the bale	
No. of books or bundles in a bale	
Mass of a book or bundle	
Manner of packing of the lot	
Skein formation	
Skein weight (g)	
Crossing of the skeins	
Circumference of the skeins	
Reeling device	

Remarks

1. Admixture of commercial varieties of tasar raw silk
2. Adulteration in any manner: ___________
3. Other peculiarities _______________

Lot accepted/rejected for grading

Date: Signature of Examiner

ANNEX D

(*Clause* 4.3)

PROFORMA FOR GRADING CERTIFICATE OF TASAR RAW SILK

[Conducted in accordance with IS 17618 (Part 1),
Tasar raw silk — Grading and test methods: Part 1 — Grading/classification]

Name of testing house :____

Grading certificate No : ____________________

Mark of the lot/chop/brand :____________________

Serial no. of bales in lot :____________________

No. of bales in the lot :____________________

Average conditioned size :____________________

Character	*Observed Value*	*Corresponding Major Test grade*	*Character*	*Observed Value*	*Corresponding Auxillary test class*	*Required Auxillary Test Class*	*Differnce in case of difficient Auxillary Test value*
CV of size	10.4	B	Winding Breaks	5	2	2	0
			Tenacity (g/denier)	2.6	1	1	0
			Elongation (percent)	21	2	1	1
			Cohesion (No. of strokes)	18	Only for reference		
				Grade "B" is lowered by (***1***) grade, that is = C			
					Overall grade = C grade.		

Remarks:

Date:

Signature of Examiner. Authorised Signatory

ANNEX E

(*Foreword*)

COMMITTEE COMPOSITION

Silk and Silk Products Sectional Committee, TXD 28

Organization	*Representative(s)*
Central Silk Board, Bengaluru	Dr S. V. Naik Director CSTRI (***Chairman***)
Association of Corporations and Apex Societies of Handlooms, New Delhi	Shri Abdul Rehman
Central Silk Technological Research Institute, Bengaluru	Director CSTRI
Chamundi Textiles (Silk Mills) Limited, Bengaluru	Shri A. L. Muthiah
Directorate of Handlooms and Textiles Govt of Tamilnadu, Chennai	Thiru C. Munianathan Dr K. Karnan (*Alternate*)
Himatsingka Seide Limited, Bengaluru	Shri Mohan Rao Shri S. A. Vishvanath (*Alternate*)
Indian Silk Export Promotion Council, Mumbai	Shri Dinesh Sharma
Jaipuria Silk Mills, Bengaluru	Shri Vikram Jaipuria
Karnataka Handloom Development Corporation Limited, Bengaluru	Shri P. Chandrashekhar Shri P. Manjunath (*Alternate*)
Karnataka Silk Industries Corporation, Bengaluru	Shri Siddalinga Prasad S. G. Shri D. S. Sangam (*Alternate*)
Karnataka State Sericulture Development Institute, Bengaluru	Shri V. H. Maharaddi Shri A. Jambunath (*Alternate*)
Khadi and Village Industries Commission, Mumbai	Shri D. Dhanpal Shri J. K. Gupta (*Alternate*)
National Handloom Development Corp Ltd, Lucknow	Shri Sakthivel Perumalsamy Shri Jitendra Tolambiya (*Alternate*)
Office of the Development Commissioner For Handlooms, New Delhi	Principal IIHT Salem
Office of Director of Handlooms and Textiles, Govt of Karnataka, Bengaluru	Jt Director (Textiles) Dy Director (Handlooms) (*Alternate*)
Office of the Textile Commissioner, Mumbai	Shri N. K. Gupta Shri Pranav Parasher (*Alternate*)
R A Silks, Janagaon, Telangana	Shri Ravinder Peddi Shri Sharath Peddi (*Alternate*)
Shri Ram Institute for Industrial Research, Delhi	Ms Neena Sehgal Dr R. K. Raina (*Alternate*)
Silk Mark Organization of India, New Delhi/Bangalore	Shri Shiv Govind Shri Jawahar Raina (*Alternate*)
Textiles Committee, Mumbai	Shri Kartikay Dhanda Shri P. Ravichandran (*Alternate*)
The Bombay Textile Research Association, Mumbai	Ms Shital Palaskar Shri Amol Thite (*Alternate*)

Organization	*Representative(s)*
The Tamilnadu Handloom Weavers', Coop Society Ltd, Chennai	Shri G. Gunasekaran Shri Alok Babelay (*Alternate*)
BIS Directorate General	Shri A. K. Bera, Scientist 'F' and Head (TXD) [Representing Director General (*Ex-officio*)]

Member Secretary

Shri Dharmbeer
Scientist 'C' (TXD), BIS

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